

REMARKS

Favorable reconsideration of this application in the light of the amendments and the following discussion is respectfully requested. By this amendment, claims 1 and 11 have been cancelled, and new claims 17 and 18 have been added. Support for new claims 17 and 18 can be found, for example, in the original claims, Figures 4 and 5, and paragraphs 22 and 23. No new matter has been added. Claims 2, 3, 8, 12, 14, and 15 have been amended to depend from either claim 17 or claim 18. Claims 2-5, 8-10, 12, 14, 15, 17, and 18 are pending.

Claim Rejections - 35 USC 102

Claims 1-5, 11, and 15 have been rejected under 35 U.S.C. 102(b) as being anticipated by Gosling US-2,340,466. The Examiner has taken the position that Gosling teaches a rigid piston ring and assembly comprising a piston ring having a generally annular body having a tapered outer peripheral face defining a gap and an edge, a generally hook shaped groove on a lower surface, and a radially outwardly extending projection forming a ledge and being provided at a top surface of said piston ring, wherein said groove also forms said edge; a piston having a ring groove adapted to receive said piston ring; and a cylinder wall that receives said piston with said piston ring substantially being positioned between the two.

Claims 1 and 11 have been cancelled and replaced by new claims 17 and 18. New claim 17 defines a piston ring for use with an internal combustion engine and a piston having a groove, the piston ring comprising a generally annular body comprising an upper surface, a lower surface, and an outer peripheral face, the lower surface

including a generally hook-shaped groove, the outer peripheral face tapering radially outwardly to intersect with the lower surface to define an edge, and the outer peripheral face including a projection extending radially outwardly from the outer peripheral face; wherein the edge defined by the intersection of the outer peripheral face and the lower surface extends radially outwardly farther than the projection.

New claim 18 defines a piston ring disposed in a ring groove of a piston and surrounded by a wall of a cylinder for use with a combustion chamber, the piston ring comprising a generally annular body having generally parallel upper and lower surfaces disposed between inner and outer peripheral faces, the outer peripheral face being generally tapered to an edge such that the edge contacts the wall of the cylinder and defines a gap between the outer peripheral face and the wall; and a projection extending radially outwardly from the outer peripheral face to reduce the gap between the outer peripheral face and the wall, the projection thereby reducing exposure of the outer peripheral face to the combustion chamber, and the lower surface further including a generally hook-shaped groove and the intersection of the generally hook-shaped groove and the outer peripheral face defines the edge, wherein the edge extends radially outwardly farther than the projection.

Gosling relates to a packing 26 formed of an elastic material in a generally U-shaped cross-section, having a pair of lips 31, 32. Referring to Figure 2, the Examiner views the packing of Gosling as having a generally hook shaped groove 34 in the lower surface, the lip 32 as the edge defined by intersection of the outer peripheral face and the lower surface, and the lip 31 as the projection. As shown in Figure 2 (and 4), the lip

31 extends radially outwardly farther than the lip 32. Moreover, both lips 31, 32 are in contact with the cylinder wall 10, as shown in Figure 3 (and 5).

In direct contrast to Gosling, new claims 17 and 18 both define a piston ring in which, *inter alia*, the edge defined by the intersection of the outer peripheral face and the lower surface extends radially outwardly farther than does the projection. Thus, in the piston ring of the claimed invention, the defined edge extends radially outwardly into contact with the cylinder wall, while the projection reduces, but does not eliminate, the gap between the outer peripheral face and the cylinder wall.

Accordingly, claims 17 and 18 are patentable over Gosling. Moreover, claims 2-5 now depend from claim 17 and claim 15 now depends from claim 18, and these claims are patentable over Gosling at least on this basis.

Claim Rejections - 35 USC 103

Claims 1-5, 8-12, 14, and 15 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Norwood US-RE 14,969 in view of Applicant's own admission of prior art. The Examiner has taken the position that it would have been obvious to a worker having ordinary skill to place a hook-shaped groove on Norwood's ring which already has a rectangular projection, so as to improve the sealing characteristics.

As noted in the MPEP, "[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or

references when combined) must teach or suggest all the claim limitations." See MPEP 2143 (emphasis added).

As discussed above, new claims 17 and 18 both define a piston ring in which, *inter alia*, the edge defined by the intersection of the outer peripheral face and the lower surface extends radially outwardly farther than does the projection. Thus, in the piston ring of the claimed invention, the defined edge extends radially outwardly into contact with the cylinder wall, while the projection reduces, but does not eliminate, the gap between the outer peripheral face and the cylinder wall.

Norwood, on the other hand, describes a ring in which the peripheral edge 52 and the contacting surface 73 extend radially outwardly an equal distance so that both contact the cylinder wall, as shown in Figures 2 and 4, and as described at page 1 lines 100-106 and page 2 lines 72-73. Thus, the cited art, taken alone or in combination, fails to teach or suggest all of the limitations of claims 17 and 18.

Accordingly, claims 17 and 18 are patentable over Norwood and the Admitted Prior Art, taken alone or in combination, along with claims 2-5, 8-10, 12, 14, 15, which now depend from either claim 17 or 18. All of the rejections under 35 U.S.C. 103(a) should therefore be withdrawn.

Conclusion

In view of the foregoing, favorable reconsideration of the present application and the passing of this case to issue with all claims allowed are courteously solicited.

Should the Examiner wish to discuss any aspect of this application, applicant's attorney requests a telephone interview in order to expedite the prosecution of the application.

Respectfully submitted,



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